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02.27.2015

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OF DRUGS,
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FEATURES



SILK ROAD TO HELL

Libertarian surfer dude Ross Ulbricht built his cyber drug cartel, Silk Road, on a belief in free markets and Internet privacy. Now he's in prison for a very long time.

THE DEBATE OVER AN AUTISM CURE TURNS HOSTILE



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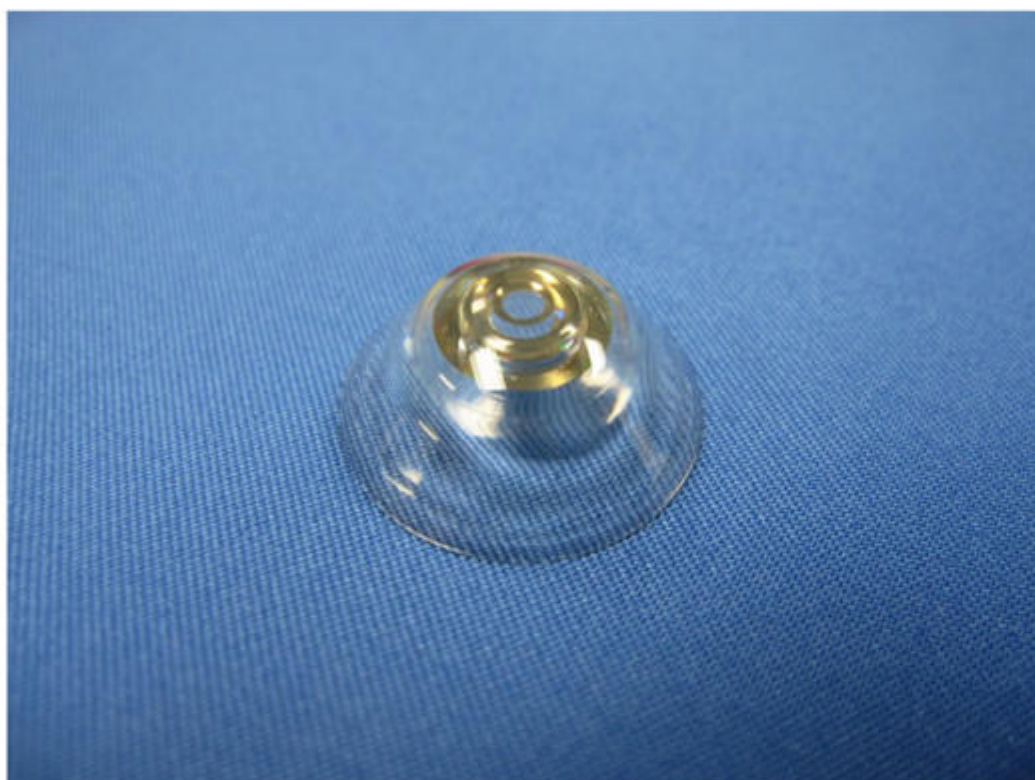


Newsweek
*THE KREMLIN'S
EUROPEAN CHARM
OFFENSIVE*



Newsweek
*JORDAN GOES ALL
IN AGAINST ISIS, BUT
FOR HOW LONG?*

NEW WORLD



*CONTACTS
WITH A ZOOM
LENS*

DOWNTIME



*THE
DECEMBERISTS
ARE SORRY.
REALLY.*



*'X-FILES'
BEHIND HER,
GILLIAN
ANDERSON IS A
BELIEVER*



*HELLO,
BOREDOM, MY
OLD FRIEND*

BIG SHOTS

CRACKS IN THE FACADE



WAILING WALL



LAST RITES



YOU MISSED





Boris Roessler/picture-alliance/dpa/AP

SILK ROAD TO HELL

LIBERTARIAN SURFER DUDE ROSS ULBRICHT BUILT HIS CYBER DRUG CARTEL, SILK ROAD, ON A BELIEF IN FREE MARKETS AND INTERNET PRIVACY. NOW HE'S IN PRISON FOR A VERY LONG TIME.

The clerk read each of the guilty verdicts, seven of them, while standing next to a large window that framed the Brooklyn Bridge in thin winter sunlight. That panoramic view will be one of the last Ross Ulbricht, who had just been convicted of multiple crimes, including narcotics trafficking conspiracy and money laundering, will likely enjoy for many years. The man who built Silk Road, the Amazon of what's

often called the Dark Web, took his conviction stoically, then turned and smiled at his family and supporters—young men and women who distrust the government at least as much as Tea Partiers do.

As a federal marshal marched Ulbricht out a side door, a young man in black dreadlocks shouted, “Ross is a hero!” Derrick Broze, a member of the Houston Free Thinkers, came to New York for this trial, part of a group of self-styled anarcho-libertarians who squeezed into the courtroom every day. In the brush-cut precincts of the Southern District of Manhattan, they stood out with their dreads, vintage threads, tattoos, piercings and smoky odor, and they provoked the judge’s ire when they distributed pamphlets to potential jurors urging them to declare Ulbricht innocent no matter what the evidence showed. They believe the government’s prosecution of him is about something much bigger and more menacing than a simple drug trafficking case. They say it is an ominous triumph for the agencies that are spying on all of us, all the time.

Ulbricht’s exchange was the logical extension of Craigslist or eBay or Uber, a company matching customers with providers and collecting a fee, although in this case the buyers weren’t seeking poodle ashtrays or a ride in a Prius. Silk Road matched drug sellers and drug users across the globe. If hailing a cab seems out of date, so too is walking around a city park hoping to score some weed.

Even before he was arrested in October 2013, Ulbricht portrayed himself as more than a drug kingpin—a philosopher kingpin, perhaps. He is ambitious, creative, tech-savvy and a dead-ringer for actor Robert Pattinson. Before he found his inner cartel leader, he was more Haight-Ashbury than Silicon Valley, more ’shrooms than Sand Hill Road, more into Adam Smith than Steve Jobs. He fashioned himself a libertarian, perhaps a younger, hipper version of Mitt Romney in his early days at Bain Capital. A scientist and self-taught programmer, he left digital crumbs recording

his progression from grad student to online drug lord on his computer; on YouTube and LinkedIn; and in chats and emails. His fatal error was thinking he could remain anonymous on the Internet—the same Internet that computer security writer Bruce Schneier has called “a surveillance state.”



Alleged fake IDs that Ross Ulbricht ordered were intercepted by Customs and Border Protection. Credit: United States Attorney's Office/The New York Times/Redux

In the post-Snowden era, it is surprising to find smart people selling drugs online who think they are invisible behind a cloak of Internet anonymity. But most of us harbor similarly naive beliefs, such as a faith that a strong password, two-step verification and other bits of cyber-hygiene that we're told to practice as diligently as we brush our teeth allow us to roam the Internet safely. They won't. Ulbricht believed the so-called Deep Web would protect him. It didn't.

The stunning rise and sudden fall of Silk Road is a story so compelling it was optioned by Hollywood before

Ulbricht was convicted. In its short life, Silk Road earned him something like \$80 million, according to authorities, in commissions on sales of drugs, guns and other contraband until FBI agents nabbed him while he was tapping into the free Wi-Fi at a public library in San Francisco. Ulbricht's trial, concluded in Manhattan last month, revealed that he was brought down by an extraordinarily elaborate cat-and-mouse game involving a maze of false Internet identities, the betrayal of trusted friends and associates, and half a dozen fake murders.

An Anarchic Ayn Rand

Growing up in Austin, Texas, in the 1990s, Ulbricht didn't look or act like an aspiring cartel boss. He was, his father says, "a healthy, happy, unflappable Buddha of a kid," an Eagle Scout and honor student, a math whiz, and because his parents built bamboo solar-powered houses in Costa Rica, Ulbricht was weaned on *la vida pura*, playing in the jungle and surfing.

The Free Ross Ulbricht website extols their hero's humanitarianism (donations to prison reformers and the urban poor, water programs in Africa). It omits the heedless hedonism. One of his friends, René Pinnell, told *Rolling Stone* that when he told Ulbricht he had "dipped a toe" in drinking and drugs during high school, Ulbricht said, "I did, like, a cannonball ... in that department."

All those drugs—Ulbricht reportedly favored hallucinogens—didn't seem to dull his wits. His SAT scores got him a full scholarship to the University of Texas at Dallas, where he worked on organic solar cells, a burgeoning branch of green energy research that relies on polymers rather than traditional materials.



This artist rendering shows Ross William Ulbricht, second from left, appearing in Federal Court with his public defender Brandon LeBlanc, left, in San Francisco on Oct. 4, 2013. Credit: Vicki Behringer/AP

In graduate school, studying materials science at Penn State, he joined the College Libertarians and was a supporter of Ron Paul. By 2007, he was so deep into libertarian crankdom (even the black-helicopter variety) that he answered one of presidential hopeful Mitt Romney's YouTube questions about America's greatest challenge with this YouTube reply: "The most important thing is getting us out of the United Nations."

Ulbricht's politics are rooted in the philosophy of Austrian economist Ludwig von Mises, who fell somewhere on the political spectrum between Ayn Rand and anarchy. Mises was beloved by neither Milton Friedman nor the socialists, but his unrelenting contempt for government interference in markets drew acolytes.

By 2010, Ulbricht had turned away from materials science and academia and announced on LinkedIn that he would be "creating an economic simulation to give

people a firsthand experience of what it would be like to live in a world without the systemic use of force,” by which he seemed to mean police and laws. Around the same time, according to federal prosecutors, he was consulting a guidebook called *The Construction & Operation of Clandestine Drug Laboratories* and had built a DIY “shroomery” at a remote cabin in Texas to grow hallucinogenic fungi that would be the first product he was going to sell through his economic “experiment.”

While his ‘shrooms sprouted, Ulbricht taught himself computer programming. When he got confused about coding, he called on an old college friend, Richard Bates, a programmer at eBay. Ulbricht’s girlfriend and Bates were the only people he told about his project. He hid it on Tor (The Onion Router), a browser system invented by the Navy that relies on layers of computer routers and is now used by dissidents, drug sellers and pornographers to cloak their Web activities. He set up the site to accept the cryptocurrency Bitcoin, evading both banking and government oversight.

Timeline: Key Moments in the Life of Silk Road Creator Ross Ulbricht

Soon, Silk Road had vendors galore, and buyers were avidly building a ranking system to screen out the bad stuff, an echo of customer preferences on sites like Airbnb and Yelp. Ulbricht was getting rich, charging 10 to 12 percent on each transaction. He didn’t dare flash his wad, however, so he lived ascetically in rentals, often with roommates. He ditched Bates and the girlfriend before the end of 2011, moving to Australia for a while and then San Francisco. He limited his splurges to a Thailand jaunt, where he indulged in “jungles and girls.”

As his business grew, Ulbricht kept a journal—on his laptop, of course—sometimes sounding as if he was writing for the benefit of future biographers. In one long entry dated simply “2011,” he described the early days of Silk Road. “Only a few days after launch, I got my first signups, and

then my first message. I was so excited I didn't know what to do with myself. Little by little, people signed up, and vendors signed up, and then it happened. My first order. I'll never forget it. The next couple of months, I sold about 10 lbs of 'shrooms through my site."



Ross Ulbricht, 29, is pictured in a family photo. Ulbricht allegedly joked that he wished he could explain Silk Road to family and friends who couldn't understand why an apparently unemployed young man was so busy. Credit: Ulbricht Family

Later, in a chat, he joked that he wished he could explain Silk Road to family and friends who couldn't understand why an apparently unemployed young man was so busy: "I'm running a multimillion-dollar global drug operation!"

In addition to the diaries, he saved his chats, kept an Excel spreadsheet of his business and a Bitcoin "wallet" with \$18 million on his laptop.

The money was nice, but Ulbricht constantly portrayed Silk Road as a political act. He told Forbes, in a blind online interview, that the site was "a way to get around the regulation of the state." On the site, he often issued

“proclamations” like: “Silk Road is about something much bigger than thumbing your nose at the man and getting your drugs anyway,” he wrote in 2012. “It’s about taking back our liberty and our dignity and demanding justice.” Some people give money to the American Civil Liberties Union; Ulbricht tried to start a revolution.

A Silk Road vendor who went by the online name “Variety Jones” picked up the banner. Jones, who advised Ulbricht to start using the handle Dread Pirate Roberts on the site and in his business communications, has never been publicly identified. He once wrote on a forum, according to Wired, “I’m here to break the back of prohibition, to make the jack-booted thugs from the DEA roll up their tents and sneak off into the night, and to do what I can to ensure a future where 65 year old MS patients aren’t shot by SWAT teams during drug raids because they suspect there was a fucking plant growing in the back room.”

As his site grew, the government took notice, and Ulbricht impishly reveled in the attention. As some U.S. senators called for Silk Road to be shut down, Ulbricht made a chipper comment to Bates in a chat about how yet another national media outlet had mentioned his grand blow for freedom. Meanwhile, federal agents in Maryland and Chicago were on his trail. Homeland Security agents scanning incoming mail on foreign flights started noticing hundreds of carefully wrapped small shipments of drugs—two or three Ecstasy pills—in envelopes with “StudyAbroad.com” return addresses and slips of paper inside, urging recipients not to forget to give customer feedback. By July 2013, the feds were so inside the Silk Road system that an agent was able to assume the online identity of a member of the Silk Road staff.

Ulbricht’s success brought myriad challenges, not the least of which was hiding the identities of vendors and customers. In March and April 2013, prosecutors say, Ulbricht solicited the murder for hire of “FriendlyChemist,”

a vendor who was demanding a half-million dollars not to reveal the identities of some Silk Road vendors and suppliers. A few days after the threat, another anonymous user, “redandwhite,” contacted DPR (Dread Pirate Roberts) claiming to be the person “FriendlyChemist” owed money to, and eventually agreed to commit a murder for hire for DPR. Prosecutors claim Ulbricht paid a total of \$730,000 to kill FriendlyChemist and five more individuals who had threatened to reveal vendors’ and clients’ real names.



Ross Ulbricht was arrested at the Glen Park Library on Oct. 1, 2013 allegedly for running the Silk Road website which sold drugs using bitcoins.

Credit: Steve Rhodes/Demotix/Corbis

Silk Road came to its dead end on the afternoon of October 1, 2013. Federal agents had trailed Ulbricht from

his modest house to the library, and arrested him while he was chatting online with what he thought was one of his employees, who was, in fact, an FBI agent sitting nearby. With Ulbricht logged on to his computer at a table in the science fiction section, two agents pretended to have a loud domestic spat behind him. When Ulbricht turned to watch them, a third agent leapt onto his open laptop, making sure he couldn't close it. Had Ulbricht been able to shut that encrypted machine, investigators would never have been able to access its contents, establish that he was the man behind the empire, or prove that he was the mysterious Dread Pirate Roberts.

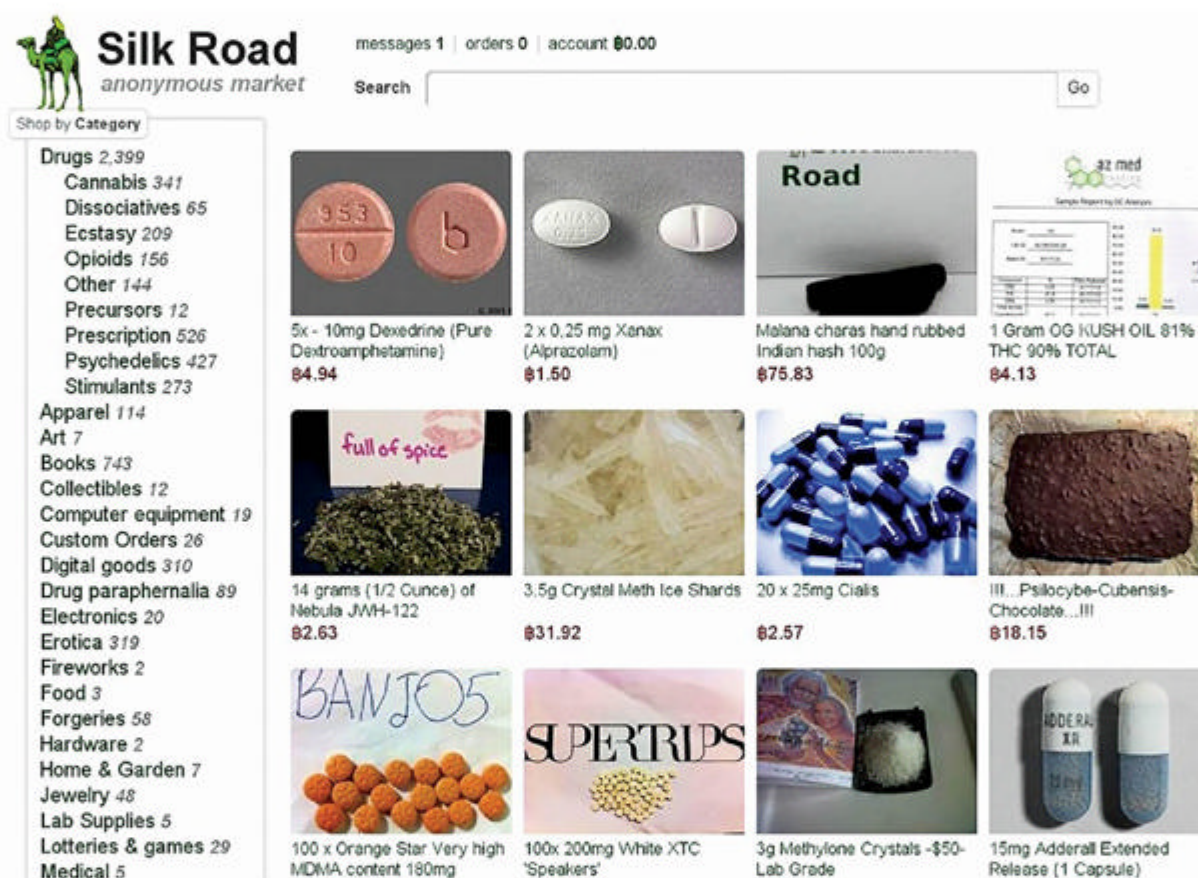
Devastatingly Disloyal

Ulbricht's trial was a tragic spectacle, from the squandered brilliance of the young defendant to the haggard faces of his parents sitting behind him and the spectacular betrayal by his good friend Richard Bates. When defense lawyer Josh Dratel accused the eBay programmer of cutting a deal to testify against Ulbricht in order to avoid criminal charges, Bates, fighting back tears, conceded he had done just that.

Prosecutors projected chats between the two men on a giant screen in the courtroom, casual conversations in which Bates called himself "baronsyntax." The two young men chatted about programming code and parties and all the media attention Silk Road was getting. Ulbricht confessed at one point that he was "overwhelmed." (He was once so addled from stress—or the testing of his 'shrooms—that he forgot Bates had helped him move into a new apartment.) In November 2011, Ulbricht told Bates he had sold the site, and he drifted out of Bates's life. But Ulbricht had only gone dark and had a new set of online advisers and fans, some of whom would prove to be devastatingly disloyal.

The trial revealed some, but not all, of the tricks FBI agents used to snatch Ulbricht out of the Dark Web. First, agents hacked into Silk Road after locating its servers

in Iceland. The government has never explained how it located those servers, at least to the satisfaction of tech experts. Once inside the site, government agents created fake personas to interact with the site's administrator. In the summer of 2013, one agent wormed his way into the top levels of the Silk Road operation, posing as an employee who went by the name of "Cirrus." Once the FBI was dealing directly with Ulbricht through false identities, it was only a matter of time before they smoked out his identity and whereabouts.



A screen shot from the website Silk Road, which could only be accessed on the "deep web" with special browsers. Items up for sale included meth, prescription drugs and firearms. Credit: Newsweek

After they charged Ulbricht, FBI agents built their case by gathering metadata, trawling through his personal email, chats, photographs and Dread Pirate Roberts's chat logs. They matched known events from Ulbricht's life—an illness, a case of poison oak, an OKCupid date with a woman named Amelia—with mentions of the same events by the virtual DPR. By the time they were done, Ulbricht was ensnared by his actions and words online.

You Could Be Next

Ulbricht's supporters argue that his prosecution is about something a lot more important than Silk Road. They believe it's indicative of a rapidly spreading erosion of civil liberties—and they're not the only ones who believe that. Gizmodo writer Kate Knibbs wrote after the verdict, “[L]aw enforcement was allowed to present damning digital evidence without explaining where it came from. That's bad news for our civil liberties.”

The Deep Web has many legitimate users. Library card catalogs and medical records have a home on it. Mainstream Internet users concerned about corporate invasions of privacy use it. Tor hosts a New Yorker magazine whistleblower site, Facebook has established a special Web address for Tor users, and British rocker Aphex Twin recently released new music on it. Crucially, people living under tyrants find a home on it.

“We do know there are dissidents in Syria and Russia who use a forum that's hosted on the Dark Web to be able to communicate with each other secretly,” says Jamie Bartlett, author of *The Dark Net* and director of the Centre for the Analysis of Social Media. “How do you weigh the life of a Syrian dissident against the ability to access pornography? You can't have the one without the other.”

After the feds smashed up Silk Road, new black market sites sprouted on the Dark Web like 'shrooms after a soaking rain. Many of them are much more sophisticated, having learned from DPR's mistakes. The Web may be the future of the drug trade, just as Internet commerce has destroyed brick-and-mortar retail in other sectors, but the Silk Road investigation resembled the gritty cops-versus-gangs saga depicted in *The Wire*. “Despite all the obscure technology, old-fashioned policing is how they caught him,” Bartlett says. “The answer to the problem of the Dark Net markets is going to be increased reliance on what you might consider good old-fashioned policing.”

Ulbricht's supporters have a name for this kind of policing: entrapment. After seizing those servers, FBI agents impersonated vendors and employees to snare DPR. Those murders for hire that Ulbricht allegedly ordered turned out to be another elaborate ruse. No one has yet explained who was behind them, but Maryland federal prosecutors have indicted Ulbricht on one charge of hiring a federal undercover agent to commit murder.



Max Dickstein walks with other supporters of Ross Ulbricht, the alleged creator and operator of the Silk Road underground market, in front of a Manhattan federal court house on the first day of jury selection for his trial on Jan. 13, 2015 in New York City. Credit: Spencer Platt/Getty

Joshua Dratel, the defense lawyer, tried to convince the jury that anyone could find himself monitored by the government online, and that the chat logs purporting to involve Ulbricht under the Dread Pirate Roberts pseudonym could have easily been fabricated. “The Internet is not what it seems,” he warned in his closing statement, reminding jurors that FBI agents assumed multiple fake online identities to catch Ulbricht and controlled “dozens of accounts” on the site—all without obtaining a warrant. “No one told anyone when he assumed new identities,” Dratel

said. “The Internet permits and thrives on misdirection and deception. Even the [FBI agent who posed as a Silk Road employee] said [the ruse] was so convoluted he couldn’t keep track.”

Dratel also argued in court that the FBI probably had help from an agency, like the National Security Agency (NSA), in locating the servers in Iceland. In a court filing, the government denied that. “Ulbricht conjures up a bogeyman—the National Security Agency.... The facts are not at all what Ulbricht imagines them to be.... The Silk Road server was located not by the NSA but by the Federal Bureau of Investigation...using perfectly lawful means.”

But government agencies do share surveillance data from the Web; collaboration between intelligence agencies has been standard procedure since soon after 9/11. And given the magnitude of the FBI’s domestic surveillance power, it’s surprising it took the bureau two years to nail Ulbricht. Shane Harris, in his 2014 book *@War: The Rise of the Military-Internet Complex*, details a symbiotic relationship between the FBI and NSA, claiming that together they are shredding online anonymity. He reports that while the NSA pays phone and Internet companies to build their networks so that the agency can tap into them, and has deliberately weakened cryptographic standards and worked to break Tor, the FBI is the agency that enables the national intelligence agency’s domestic operations. “When journalists say the NSA ‘spies on Americans,’ what they really mean is that the FBI helps them do it, providing a technical and legal infrastructure for domestic intelligence operations.”

Schneier, the national security technology expert and blogger, is extremely bleak about online privacy. “Welcome to a world where Google knows exactly what sort of porn you all like, and more about your interests than your spouse does,” he wrote in a blog post six months before Ulbricht was arrested. “Welcome to a world where your cell phone company knows exactly where you are all the

time. Welcome to the end of **private conversations**, because increasingly your conversations are conducted by e-mail, text, or social networking sites. And welcome to a world where all of this, and everything else that you do or is done on a computer, is saved, correlated, studied, passed around from company to company without your knowledge or consent; and where the government accesses it at will **without a warrant.**”

In other words, they did it to put Ulbricht in jail. You could be next.

Dratel told Newsweek the government’s reliance on metadata bodes ill for defendant rights because it is easily manipulated. All of those coded bits of information—the time stamps and GPS stamps on photos and messages—can be easily manipulated, even forged. Lyn Ulbricht still denies her son participated in those incriminating chats with Bates and Variety Jones and the fake assassins. “There is no proof of who is behind that computer screen, or if it’s one or more people using that name,” she wrote in an email to Newsweek. “When everything is anonymous, identity becomes impossible.”

The young philosopher kingpin who freed drug users from the locavore 20th century model of drug selling—street corners, landlines, bike messengers—is now paying for that with his own liberty, and facing a future his mother calls, simply, “grim.”

Along with his supporters, Lyn Ulbricht will always see her son as more than just the audacious founder of a global drug eBay. “Internet freedom, the drug war, even liberty,” she says, “are all on trial along with Ross.”



Bret Hartman for Newsweek

THE DEBATE OVER AN AUTISM CURE TURNS HOSTILE

**ONE ACTIVIST'S SEARCH FOR A CURE FOR HIS AUTISM
IS DRAWING A VIOLENT BACKLASH.**

Jonathan Mitchell arrives at Boardwalk 11, a Culver City, California, karaoke bar, well ahead of the Saturday night crowd, takes his usual barstool in the back and nurses his usual glass of cranberry juice. A woman in heels and black Lycra leggings is singing Garth Brooks, “Friends in

Low Places.” I’m not big on social graces, think I’ll slip on down to the oasis. Behind the bar table, Mitchell’s hands flap and flail about so softly most would not even notice his self-soothing fidgeting.

At 59, Mitchell easily admits that he is lonely. He walks with heavy shoulders, and a facial expression that is part grin, part grimace. His social life revolves around weekly dinners with his parents, both in their 80s. He can’t keep a job. He can’t find a girlfriend. He paces, obsesses, repeats himself and sometimes doesn’t realize when he’s saying something rude. Mitchell blames it all on his autism. “I hate it,” he says. “It’s a horrible disability. I wish there were a cure.”

He has reiterated those three sentences on the Internet many times, in many ways, and his unapologetic, blunt stance has made him one of the most controversial voices in the autism blogosphere—he’s one of the few who have shown outspoken support for the effort to find a cure. “Hopefully on my tombstone they will write, ‘We don’t need no stinkin’ neurodiversity,’” Mitchell writes, taking a direct shot at the growing movement for acceptance and inclusion for people with everything from Asperger’s to attention deficit disorder, epilepsy and Tourette’s syndrome.

The neurodiversity movement began in the 1990s, **gaining ground** through social media, largely around discussions of autism. Proponents liken their stance to the struggle for acceptance of ethnic minorities, and for equality in gender and sexual orientation. There was a time, they point out, when the medical community considered homosexuality to be a mental disorder. What if people on the autism spectrum were accepted for their differences, rather than pathologized?

“As an adult with autism, I find the idea of natural variation to be more appealing than the alternative—the suggestion that I am innately bad, or broken and in need of

repair,” **writes** best-selling author John Elder Robison, who has Asperger’s.

When it comes to the question of whether and how to “treat” autism, many neurodiversity advocates try to make a fine distinction: Remedies that aim to relieve suffering are OK, but the idea of a “cure” is repellent. Many believe, as **autistic educator and author** Nick Walker puts it, that the effect of a cure would be “the reduction of naturally evolved human diversity.”

But Walker is a self-sufficient teacher, husband and parent. What of those severely autistic children who cannot speak or communicate at all? Shouldn’t their parents be encouraged to seek treatments that might one day help them interact more easily with the rest of us? “Parents who whine and say, ‘I would give anything for my kids to have a normal life,’ these parents....have been taught this message of tragedy and hopelessness and have bought into it,” Walker says. “It’s awful. It’s wrong. If a parent is putting effort into trying to cure autism, that effort is not helping that child thrive.”

Philip Gluyas, another autism blogger, writes that Mitchell is bitter “because he was brought up that way by his mother after she was blamed for his autism when he was first diagnosed back in the 1950s. She tried to cure him, instead of [helping] him to adjust like a good mother would have.”

A Recipe for Misery

After some neurodiversity advocates learned I was writing a profile of Mitchell, I received a stream of emails and requests urging me not to. “The man is a threat to the stability of the autistic community,” wrote Gluyas. “He is a hater. He hates himself.”

“His life is bad, and he blames being autistic rather than blaming a world that is not set up for autistic people,” says Walker. “It is no different than a black person blaming his

race rather than society for his problems.... It has never made a gay person happy to hate himself for being gay. It's a recipe for misery."

Mitchell steadfastly demurs. He feels his experience isn't at all like the kind of oppression that comes with being gay or black. Prejudice against such minorities, he says, does not usually limit their abilities to find love or friends. His deficits, he explains, are social. He's tried to make friends and interact in person more (for example, he's joined support groups for people with depression, and another for people on the autism spectrum), but the crippling loneliness always returns. That, he says, is why he champions neuroscientific exploration and research that might one day lead to treatments.

Mitchell knows he is lucky. If not for his mom, a retired lawyer, and dad, a retired engineer, he believes he might be homeless. They give him \$26,000 a year and also bought him a condo years ago. Later, he sold the condo to buy his current home: a spacious West Los Angeles house, where dozens of pencils with shoelaces tied to the ends fill his desk drawers and clutter his tables. Though he spends much of his days rocking back and forth, twiddling the pencils and shoelaces around and around, he can also drive, play poker and shop for groceries. He can cook one or two simple meals, and goes out to dinner regularly—by himself. At Italy's Little Kitchen, where he gets a table for one every Friday, the staff knows his order as soon as he walks in: spaghetti and meatballs.

Mitchell is also a prolific writer. He has penned three novels, 25 short stories and several hundred blog posts.

There are some on the autism spectrum who might be thrilled if they one day woke up with Mitchell's abilities. And there are some parents of children with severe autism—those unable to communicate or survive without constant supervision—who would do anything for a drug or treatment

that would help those children grow up to be self-sufficient and fulfilled.

Death Threats

One day, as Mitchell and I sat in a Starbucks near his home, I pointed to regions of my head as he rattled off the brain parts that lay beneath, along with their functions. My hand moved to the midbrain. “That’s the parietal lobes, which have to do with sensation and spatial relations and perception,” he says, adding, “I may have a problem with parietal lobes. I have an inability to do blocks and puzzles. I have bad fine-motor coordination problems, and can hardly write in cursive.” He spoke about five notches louder than most people conversing at nearby tables, causing some to look over.

In his quest for an autism cure, Mitchell has become a self-educated observer of neuroscience, highly adept at explaining the brain. He has met with [Eric Courchesne](#), a neurobiology and autism expert at the University of California, San Diego, about seven times since 1989. Mitchell contacted Courchesne after reading about his research on how autism can be traced back to infancy. Mitchell is also Facebook friends with neurologist Marco Iacoboni, who runs the Ahmanson-Lovelace Brain Mapping Center at UCLA, where he studies mirror neurons, cells in our brains that help us feel empathy and play a role central to socializing and communication. [Studies](#) have shown that those on the autism spectrum may have deficits within their mirror neuron systems. Mitchell recently visited Iacoboni’s lab and has been emailing back and forth with him with questions about mirror neurons since 2010.



Mitchell waits for his meal at a fast food restaurant in Los Angeles on February 14, 2015. Credit: Bret Hartman for Newsweek

Mitchell has also built a relationship with Manuel Casanova, a professor of anatomical sciences and neurobiology at the University of Louisville. Casanova's research has centered on **abnormalities** within the brain's minicolumns—layers of the brain containing 80 to 100 neurons, which affect people's recognition and judgment—in autistic people. He introduced transcranial magnetic stimulation (TMS) as a **practice** to treat symptoms of autism. Though overall results **have been mixed**, TMS is increasingly being used at medical centers across the U.S.

When Casanova publishes new research, Mitchell is often the first to read his work, and he usually offers a more thorough critique than many of his neurology colleagues do, Casanova told me. In return, Casanova critiqued Mitchell's novel, **The Mu Rhythm Bluff**, about a 49-year-old autistic man who undergoes TMS—which involves sending electrical currents into underlying brain tissue—in an attempt to tone down his autism. "I was particularly impressed with the current scientific knowledge

of the author and how mu rhythms, mirror neurons, and transcranial magnetic stimulation (TMS) make their way into the story,” Casanova wrote in his Amazon review.

Casanova says members of the neurodiversity movement “claim what I do is practically genocide.” They are concerned, he says, that “what I’m trying to do is change the way they actually think.” When Casanova writes frankly on his blog about his views on treating autism, he is bombarded with angry phone calls and hateful emails. He has even received death threats.

Autism’s Gone With the Wind

When her son was born in 1955, Norma Mitchell, now 86, just thought he was impossible to soothe. She was told that he had colic. As a toddler, he would smear feces on the wall, throw tantrums and fling himself around. But there were glimmers of hope. Mitchell was fascinated by a little record player in his parents’ dining room, and he would watch the vinyl platter spin around and around. “I would be so delighted, thinking, Oh, my child is going to love music.” Sometimes he would line blocks end to end across the floor, and she would think, He will be an engineer!

He learned to talk, but by age 2½ his words stopped coming. His parents took him to a psychoanalyst, who saw him four or five times a week starting when he was 3. “She blamed everything on me,” Norma says. If she was a better mom, her son would improve.

At one point, his parents considered sending him away to an institution. “He said, ‘Please don’t send me away,’” according to Norma. They couldn’t bring themselves to do it. They instead tried to encourage his hobbies, taking him to Japan when he was 10 after noticing he was interested in judo, for example. In the Tokyo airport, Mitchell got separated from them. Hours later, his parents found him at the terminal where their plane was supposed to take off.

He'd figured out how to get there on his own without being able to speak or read Japanese.

"I always thought he would one day be normal," Norma says. "He seemed so close to it. Even today, when people meet him, he seems normal. And he is so far from normal."

When he was 12, the family found a new psychiatrist, and this one finally diagnosed him with autism. He went to a series of mainstream and special education schools, where at times he was threatened with expulsion for his behavioral problems, and bullied. "Usually, I was aware that other kids were bullying me, except occasionally when some girls in junior high...pretended to flirt with me and for a while," Mitchell writes. "I did not understand they were making fun of me."



Mitchell sings "Puff the Magic Dragon" during karaoke on February 14, 2015 at Boardwalk 11 Bar and Restaurant in Los Angeles. He likes to go to the bar once a week to sing and socialize, he says. Credit: Bret Hartman for Newsweek

He still gets bullied, he says—but now it's by members of the neurodiversity movement. When not blaming his mother for his behavior, some have written mean-spirited songs about him. "They've called me turdball and buttwipe.

One girl said I was like a Jew that sympathized with Nazis and I would gladly jump into [a] crematorium.” Others have called him a quisling, or traitor.

Mitchell barks back. “You are homeless,” he wrote to one critic. “You don’t even have a loo to crap in.... The only girls you had sex with walked on four legs and are in a dog pound.”

Jack says his son “tends to go overboard, he becomes very emotional about neurodiversity and a few other things.” But immature behavior aside, he can’t blame Jonathan for wanting a cure. “The loneliness is the worst thing. It’s absolutely horrible. Just think of yourself with no friends, no relations.” Mitchell often talks about all of the studies he’s read, how some have found that autistic people might be more **prone to chronic disease**, and how a lack of friends can be as **unhealthy as smoking cigarettes and drinking alcohol**.

He does have one friend. Oliver Canby, a 22-year-old with shaggy blond hair and Asperger’s, came across Mitchell’s short stories and blog online after Googling “autism blogs” when he was in high school. “I thought it was interesting that he was autistic and supported the idea of a cure,” Canby says. “I didn’t know that [there were] autistic people [who] did support a cure. I thought all of them were members of neurodiversity.”

Today, the two take regular walks together, talking about baseball, therapy, neurodiversity, autism, writing and women. Canby might be Mitchell’s biggest fan. In an Amazon review of Mitchell’s novel, he wrote, “This is perhaps the best novel ever written, the next *Gone With the Wind*.”

This is the kind of admiration the neurodiversity advocates fear—that Mitchell’s blog will find its way to more young people on the autism spectrum, fueling them with negativity about their brains and false hopes for a cure, rather than teaching them to love themselves as they are.

Almost in Rhythm

At Boardwalk 11, the night has been filled with upbeat songs by Nicki Minaj and Beyoncé. The deejay pulls Mitchell's name and song choice. "This one is a pretty sad song," he says. Mitchell takes the microphone as the music begins, belting out the lyrics to "Puff the Magic Dragon":

A dragon lives forever, but not so little boys
Painted wings and giant rings make way for other toys
One gray night it happened, Jackie Paper came no more
And Puff that mighty dragon, he ceased his fearless roar

Mitchell knows he will leave this karaoke bar early, and alone. He will wake up tomorrow and read the autism blogs.

"Autism is not your biggest problem. By far," writes Kimberly Wombles, mother of three autistic children, in a blog comment directed at Mitchell. On her [blog](#), she states that her kids "do not need to be cured. I celebrate who they are. As a good parent does, I help them with skills they need to develop, but I love them regardless of their ability to make eye contact, to sit still, to go with the flow, to write, to become independent."

Autism, she says in her note to Mitchell, "isn't responsible for everything wrong with your life. It's not. Attitude and disposition go a long way to causing your problems, and that ain't autism."

Onstage, Mitchell shifts from foot to foot, almost in rhythm to the song, in his moment as the center of attention. The audience members mostly ignore him, turning to their drinks and friends, waiting for the performance to end.

His head was bent in sorrow, green scales fell like rain
Puff no longer went to play along the cherry lane
Without his lifelong friend, Puff could not be brave
So Puff that mighty dragon sadly slipped into his cave...



Ivan Sekretarev/AP

THE KREMLIN'S EUROPEAN CHARM OFFENSIVE

COMMUNIST? RIGHT-WING NATIONALIST? SURE! THE KREMLIN IS COURTING ALL THE EUROPEAN ALLIES IT CAN FIND.

Vladimir Putin knows how to make friends and influence people. It takes charm, a little anti-Americanism, a dollop of conservative family-values ideology, some visionary-leader atmospherics and, of course, money. Over recent years the Kremlin has been busy deploying all these tactics and more

to attract, or in some cases to rent, allies across Europe. Now, with the West uniting against Russia, the Kremlin has ordered that campaign expanded. With Russia's economy nose-diving in the wake of EU and U.S. sanctions and falling oil prices, bringing influential Westerners over to Russia's side has become essential, politically and economically.

“Overall the plan is to have a way to subvert European unity, and ultimately Euro-Atlantic unity,” says Peter Pomerantsev, author of *Nothing Is True and Everything Is Possible*, a study of the world of Kremlin propaganda.

Despite the annexation of Crimea, a bloody six-month separatist war in eastern Ukraine and crackdowns on gays, journalists and opponents at home, Russia can still boast some powerful European friends. Czech President Milos Zeman has condemned EU sanctions against Russia and called the conflict in Ukraine a “civil war;” French ex-president Nicolas Sarkozy, who still heads the powerful center-right UMP party, said earlier this month that Europe should formally approve ceding Crimea to Russia. Hungary's nationalist Prime Minister Viktor Orban believes Europe's “prevailing ideological winds” are “blowing from the East” and sees in Russia an ideal political model for an “illiberal state,” which he admires. Orban welcomed Putin to Budapest this month, despite thousands of pro-European demonstrators who marched, symbolically, from Budapest's Eastern train station to its Western one.

Perhaps most oddly of all, Greece's new radical leftist Syriza-led government, chafing under the EU's economic constraints, has turned to right-wing Russia as its savior. “If there is no deal [with the EU] then we will have to go to Plan B,” Greek Defense Minister Panos Kammenos said recently. “We have other ways of finding money. It could be the United States at best, it could be Russia, it could be China.” According to Nikos Chountis, Greece's deputy foreign minister, Moscow has already stepped forward with “proposals, offers I would say, for economic support.”

Russia has been courting Syriza for some time. In May 2014, Alexis Tsipras—now Greece’s prime minister—was received in Moscow as an honored guest by Valentina Matviyenko, chair of the upper house of Russia's parliament. Since then, Tsipras has echoed the Kremlin line that the government in Ukraine is composed of “fascists and neo-Nazis,” supported separatist referendums in eastern Ukraine, and this month repeated Greece’s opposition to more European sanctions against Moscow. Nikos Kotzias, a former professor at the University of Piraeus who is now Greece’s foreign minister, is also close to Russian philosopher Alexander Dugin, whose doctrine of “Eurasianism” combines a mystical, anti-Western philosophy with Russian ultranationalism. In December 2014, a Russian hacker group named Shaltai Boltai released a trove of emails linking top Syriza leaders with Dugin and Russian oligarch Konstantin Malofeyev, who has bankrolled the separatist movement in Ukraine.

Russia’s new friends come from a wide—and bewildering—variety of backgrounds. But they all have two things in common: a disdain for the European Union, and a dislike of U.S. hegemony. Most are also social conservatives. “Everyone from Venezuela to China who believes the West is degenerate and rotted by homosexuality has Putin as their poster boy,” says Daniel Hannan, a prominent eurosceptic Member of the European Parliament for South-East England.

Some, like Zeman—age 70 and a fluent Russian speaker—are old Communists who have made friends with Russia’s new capitalists. Zeman's Party of Citizens' Rights, for instance, was openly backed by Martin Nejedly, the Czech representative of Russia’s Lukoil company. And the Russian editions of Zeman’s books were published by a Lukoil-backed publishing house, according to an exposé in Respekt weekly.

Most Kremlin supporters, though, are on the other side ideological spectrum. Gabor Vona, for instance, the head of Hungary's extreme-right Jobbik party, says his mission is "to liberate Hungary from the Euro-Atlantic slavery... and to expel liberal cultural policy and influence from the state sector." He has praised Putin for defending and fighting for "traditional family values, Christian morality and our common Eurasian heritage," and claims that the EU is supporting "ethnic cleansing among the Russian-speaking people in Ukraine."



A pedestrian shelters from the rain as she passes a neon sign displaying foreign currency exchange rates on a street in Saint Petersburg, Russia, on Thursday, Dec. 18, 2014. President Vladimir Putin struck an uncompromising stance over the crisis gripping Russia, accusing the U.S. and European Union of trying to undermine his nation and blaming external factors for the ruble's sharp drop. Credit: Andrey Rudakov/Bloomberg/Getty

"The strengthening of Jobbik is useful for Moscow," says Peter Morvay, a political analyst at Hungary's ATV television channel. "It is a win-win situation." Prime Minister Orbán's Fidesz party is already pro-Russian, Jobbik even more so. "Putin is eyeing Vona as a possible future partner who could possibly lead Hungary out of the EU,"

says Morvay. That's unlikely—the party scores around 20 percent in polls. And in May 2014, the party suffered a blow when the Hungarian government sought to revoke parliamentary immunity for Béla Kovács, a Member of the European Parliament (MEP) for Jobbik, in order to charge him with spying for Russia and accepting illegal Russian campaign contributions (Kovács, who worked as a businessman in Russia for 15 years and has a Russian wife, denied the charges and his immunity was not lifted).

France's far-right National Front is much closer to power, with its popularity growing by the day. It supports Putin, and last year the party accepted at least 9 million euros in Russia-backed loans, including 2 million from a Cypriot firm owned by former KGB officer Yuri Kudimov, who is also a former director of VEB Capital, a state-owned Russian bank. Party leader Marine Le Pen described the loans as "perfectly legal," saying the party turned to Russia after being rejected by Western banks. Bernard Monot, a National Front MEP and economic adviser to Le Pen, said that support of up to \$50 million—eight times the present annual budget of the National Front—had been discussed with Russian banks. Le Pen has also spoken out against Russian sanctions, while insisting that "getting a loan does not dictate our international position."

The list of Russian-backed parties goes on. According to the website Political Capital, of the 24 right-wing populist parties that took about a quarter of the European Parliament's seats in May elections, 15 were "committed" to Russia. Bulgaria's extreme-right Ataka party, which has been one of the organizers of anti-NATO protests in Sofia this month, was suspected by the U.S. State Department of ties to the Russian Embassy in Sofia, according to confidential cables released by Wikileaks. Joerg Haider, the late leader of Austria's Freedom Party, has been named by Austrian prosecutors in a million-dollar-residence-permits-for-bribes scandal involving Russian businessmen. Even Nigel Farage,

head of Britain's anti-Europe U.K. Independence Party, called Putin "the statesman I most admire" and argued that the EU "directly encouraged the [Euromaidan] uprising in Ukraine" that "led in turn to Vladimir Putin reacting."

"For many it's a case of 'my enemy's enemy is my friend': people who hate the EU support the EU's enemies," says Hannan. "It's a crazy failure of logic, of course—look at the euroskeptics who ended up on the same side as Soviet nostalgics in Ukraine. I am astonished how people who call themselves nationalists can be so quick to subordinate their interests to a foreign power."

Does Russia have a grand design not just to break Europe's support for sanctions and alliance with the U.S., but to destroy the EU? You might think so from the radically euroskeptic bent of allies. But in truth Russia's friends today are on the margins of power—whereas a decade ago Putin's friends Gerhard Schroeder and Silvio Berlusconi were at the very heart of European decision-making.

What's more, though many of Russia's tactics for winning influence have been taken from a Soviet-era playbook, today's balance of power between Russia and the West is very different from a generation ago. "For this to be a Cold War, Russia would need to be a superpower. It is not," argues Brian Whitmore, author of Radio Free Europe's The Power Vertical blog. "Moscow would need to lead a bloc of nations that enjoys rough parity with the West. It doesn't. And it would need to be offering an alternative model to Western liberal democratic capitalism. It isn't."

In Minsk earlier this month, Angela Merkel of Germany and François Hollande of France put the squeeze on Putin. As squeezes go, it was a fairly gentle one: Putin signed off on a cease-fire in eastern Ukraine, the Europeans backed off another round of tougher economic sanctions, and the U.S. administration suspended plans to send arms to Kiev. "I have no illusions," said Merkel, that the deal was anything like a lasting peace—but there was a "glimmer of hope"

that Europe, standing together, could face down Russian aggression.

Now, Putin is clearly going on the counterattack—starting with his visit to Hungary. Chief among his weapons of persuasion is the old Russian trump card of cheap gas—and, in Hungary’s case, a sweet deal to build Russian-designed nuclear reactors. But Russia’s energy leverage was considerably weakened when European regulators last year blocked the South Stream project—a giant pipeline that would have made most of the Balkans and Central Europe into loyal Gazprom customers. True, the Kremlin has recently scored a success with EU member Cyprus—“an insolvent, risibly tiny Levantine backwater awash with Russian dirty money,” in Hannan’s view—which has offered Russia access to its ports and airfields, including military facilities, in exchange for Russian credit.

Russia has long been a master at the age-old diplomatic art of divide and rule. The current European consensus behind sanctions on Russia, and Germany’s unexpectedly tough stance against Moscow, is the exception, not the rule, of East-West relations. In coming months Putin will do his best to cajole whatever Western allies he can find—or buy—back to business as usual.



Royal Court/Balkis Press/Sipa USA

JORDAN GOES ALL IN AGAINST ISIS, BUT FOR HOW LONG?

**JORDAN'S AMBIVALENCE TOWARD ISIS AND AL-QAEDA
MAKES IT UNLIKELY IT WILL MAINTAIN ITS TOUGH
STANCE.**

Updated | One of the most storied units in Jordan's security forces is the Royal Desert Patrol. Steeped in traditions that go back to the British Mandate days after World War I, the unit's Bedouin scouts, wearing the distinctive red-and-white kaffiyeh headdress and bandoliers

crisscrossing their chests, still ride camels alongside sand-colored Humvees as they track down infiltrators coming across the Hashemite Kingdom's vast desert expanses. By all accounts, they're very effective at guarding Jordan's borders, while King Abdullah's 110,000-strong military focuses on preserving internal order and, of course, his pro-American monarchy.

But as the U.S.-led war against ISIS drags on in neighboring Iraq and Syria, there are suggestions Jordan's military might take on a broader role. In the wake of the gruesome video showing ISIS militants burning alive a captured Jordanian pilot earlier this month, Abdullah has been baying for their blood, sending his F-16s to bomb ISIS training camps, ammunition dumps and other targets without pause. And Jordanian officials say this is just the beginning of operations to eradicate the jihadists. "Jordan's history testifies that we do not forget vengeance, no matter how long it takes," said Lieutenant General Hussein al-Majali, the country's interior minister.

This marks a dramatic about-face—and what some in Washington see as a badly needed boost for President Barack Obama's war against ISIS from a valued Arab ally. Before the death of their pilot, most Jordanians wanted no part in the American-led anti-ISIS coalition, and a sizable number sympathized with the group. But since the immolation, Abdullah has taken point in the coalition's seven-month air campaign against the group, and his tribal subjects have rallied behind him. The young monarch's response has been so fierce that some in Washington now speculate that Jordan could become the new leader of a Sunni Arab alliance against ISIS and even introduce ground troops into the battle. Meanwhile, Egypt joined the battle on another front in mid-February, sending its warplanes to bomb ISIS targets in neighboring Libya after the group released a video showing the beheading of 21 Egyptian Coptic Christian laborers on a Mediterranean beach.

The addition of Jordanian troops into the fray would be a welcome development in Washington, where ground forces remain a highly sensitive topic. Military experts say somebody's ground troops—be they American, Iraqi or Arab—will be required to prevail against ISIS. Until now, Iraqi Kurds and Shiite militias have been holding the line against ISIS on the ground, assisted by U.S.-led airstrikes.

After months of delay, Obama has finally unveiled a proposed resolution that would codify his ongoing use of military force against ISIS. Congress is now debating the resolution, with Democrats opposing American boots on the ground and Republicans willing to give the president broader war powers. Obama stresses he's not seeking authority for an open-ended ground war, but he's cautioned lawmakers against crafting legislation that would restrict his options. Some U.S. officials also have suggested that a balanced war resolution might energize Arab members of the anti-ISIS coalition to step up their involvement in the war effort. At the beginning of the bombing campaign in August, Arab air forces flew several bombing sorties, but today their contributions consists mainly of logistical support for the Americans and now Jordan.

In their fury over the pilot's immolation, Jordanian officials haven't ruled out throwing some of the country's special forces into the fight against ISIS. They train with their American counterparts and have combat experience in Afghanistan. But it's unlikely that any sizable Jordanian cavalry will ride to the rescue of Obama's plodding war against ISIS. King Abdullah can threaten to eradicate ISIS, but his budget and his people will let him take his tribal blood feud with the militants only so far.



A Jordanian woman lights a candle near a poster of Jordan's King Abdullah (R) and a poster depicting Jordanian pilot Muath al-Kasasbeh during a candlelight vigil in solidarity with the family of Kasasbeh, who was burnt alive by the Islamic State, in Amman February 7, 2015. Credit: Muhammad Hamed/Reuters

A telling illustration of the Jordan's budgetary constraints appeared recently on **Foxtrot Alpha**, an authoritative military website that closely examined a Jordanian government video showing its F-16 warplanes loading up with ordnance and then roaring off to strike ISIS targets in Syria. Tyler Rogoway, the defense journalist who maintains the website, noted that Jordan used mainly unguided "dumb" bombs, which cause extensive collateral damage when used in urban areas and likely help strengthen popular support for ISIS in the region. (It's unclear if, as ISIS claims, Jordanian bombs killed Kayla Mueller, the last known American hostage held by the group.)

If such munitions are not being used against urban targets, Rogoway wrote, then Jordanian warplanes are striking only low-priority targets in the middle of nowhere. The lack of precision-guided munitions was on King Abdullah's mind during his recent visit to Washington.

Obama **increased aid** to Jordan by \$340 million to \$1 billion, but the increase covers both military assistance and additional funds to pay for housing more than 1 million Syrian and Iraqi refugees. And that raises questions about whether Jordan can sustain an effective air campaign.

Pat Lang, a former Middle East analyst for the Defense Intelligence Agency, notes that any extensive use of Jordan's regular ground troops against ISIS would cost far more than the country can afford and require major logistical support from a well-heeled ally like the United States. So it's doubtful they will see action, even with popular support for King Abdullah's stepped-up bombing campaign still strong. The king knows that there are limits to the public's enthusiasm for revenge and that the longer the fight against ISIS drags on, the greater the likelihood that the mixture of support and ambivalence that many Jordanians felt toward ISIS will resurface.

It's worth remembering that before the pilot's immolation, the trending hashtag on Jordan's social media was #thisisnotourwar. Last September, a group of nearly two dozen parliamentarians sent a letter to the monarch, arguing that Jordan had no reason to be in this fight. The Muslim Brotherhood and the country's more conservative Salafist leaders publicly opposed Jordan's membership in the anti-ISIS coalition, branding it as yet another Western-led effort against Islam. Even moderates argued that Jordan's involvement in the war would only provoke retaliation and draw the war into Jordan.

A September **poll** shows that a mere 62 percent of the general population regarded ISIS as a terrorist group. The same poll found that only 31 percent of Jordanians regarded Al-Qaeda's Syrian affiliate Jabhat al-Nusra as a terrorist group. Such numbers reflected strong Sunni sectarian identification among Jordanians and their deep antipathy toward Shiite Iran and its Alawite and Hezbollah proxies in Syria.

What increases the chances of the Jordanian street turning in favor of ISIS and Jabhat al-Nusra is the country's shaky economic situation and the continuing slaughter of Sunnis in Syria. With the exception of some potash and fertilizer exports, Jordan subsists largely on foreign aid and remittances. Since the Syrian civil war began four years ago, nearly a million Syrians have sought refuge in Jordan, on top of nearly a quarter of a million Iraqis who have fled the fighting in their country. Their combined presence in Jordan has driven up the price of housing and the competition for jobs. Unemployment in Jordan last registered at 25 percent. And that leaves a lot of young men—and increasingly some women—susceptible to the call of jihadi recruiters.

Jordan has been in a similar spot before. A 2005 poll showed 61 percent of Jordanians supported Osama bin Laden. Later that year, the Al-Qaeda affiliate in Iraq bombed three Western hotels in Amman, killing and wounding 175 people. By 2010, support for bin Laden had plummeted to 13 percent. But by 2014, significant numbers of Jordanians had transferred their sympathies to ISIS and Jabhat al-Nusra.

To be sure, the burning of the Jordanian pilot has stanchied those sympathies for the time being. But if the past is any guide, Jordanians do, in fact, lose their taste for vengeance, and such sympathies are bound to resurface, putting their country in play once more.



American Association for the Advancement of Science

CONTACTS WITH A ZOOM LENS

**A TEAM OF OPTICS RESEARCHERS AT EPFL ARE
WORKING ON TELESCOPIC CONTACT LENSES DESIGNED
FOR DAILY USE.**

It's expected that as we age, our eyesight will go. There's no shame, and not much fuss, in adding a pair of reading glasses to your arsenal of daily accessories—or getting your lenses split into bifocals. But for some older adults, age-related eye problems are much more dramatic than nearsightedness. **Estimates suggest** that by 2020, 196 million

people worldwide will suffer from age-related macular degeneration (AMD), a form of blindness, essentially, that comes with growing older.

AMD is the result of deteriorating cells in the macula, a small but essential area of the retina at the back of the eye. It causes a progressive loss of central vision, making a person unable to see what's right in front of him or her. Though it leaves peripheral vision intact, AMD makes it impossible for a person to, for example, read, recognize another person's face or drive. Globally, it is the third most common cause of blindness and is considered a “**priority eye disease**” by the World Health Organization.

There are treatment options, primarily, the periodic injection of anti-growth factors directly into the retina. However, said **Neil Bressler**, chief of the Retina Division at the Johns Hopkins Wilmer Eye Institute, “the treatment typically can stop further vision loss but often does not improve vision.” There is also an implantable miniature telescope approved by the Food and Drug Administration. But, said Eric Tremblay of Switzerland's **École polytechnique fédérale de Lausanne** (EPFL), the implant is designed to go only in one eye, “and then you have to learn to deal with that.” Not to mention that it's a permanent commitment.

That's why Tremblay and a team of optics researchers at EPFL are working on telescopic contact lenses designed for daily use. Inside the contact lenses are minuscule mirrors arranged to more or less mimic a traditional Galilean telescope, magnifying the image and, essentially, acting like built-in binoculars. In lab tests, they've been shown to work, but, as Tremblay told a crowd at the American Association for the Advancement of Science's 2015 annual meeting in February, “everything I've shown you is still lab stuff. To date we've put it on five people, just to check out the comfort and the mechanical aspects. Generally, the results were really good. More clinical trials are coming up.”

Bressler said there are obstacles: AMD patients are typically in their 70s and 80s, and “may not have the dexterity or other fine motor skills needed to place contact lenses on the eye.” They also “may be more prone to infection from the lens or irritation.”

Tremblay agrees, saying, “The biggest challenge to making this a viable product is oxygenation.” The lenses are 1.55 millimeters thick, much thicker than your standard soft lens, which are at most .35 mm thick. They’re also more rigid, but EPFL says clinical testing shows that they are still light and comfortable enough for daily use. Its team has spent the past two years honing a way to bring oxygen into the eye. So far, they’ve incorporated tiny air channels into the design and are also testing reservoirs of oxygen-rich fluids built right into the contact lenses.

The research was, in large part, funded by the Defense Advanced Research Projects Agency (DARPA). It might sound strange to hear that DARPA’s interested in an AMD cure—until you hear about part two of the project. EPFL has also designed a pair of glasses that work in tandem with the binocular contacts, enabling a wearer to switch between “binocular” and “normal” vision. Using a light detector, the glasses can recognize when you wink: a right-eye blink for magnification and a left-eye blink to return to normal vision.

It’s “hands-free zoom,” said Tremblay. What soldier wouldn’t want telescopic vision that pops up, quite literally, in the blink of an eye?



Bernadett Szabo/Reuters

THE INSANE REASON YOUR CLOTHES DON'T FIT... AND THE PLAN TO FIX THAT

**CARPE DIEM, MY ASS! I'M NOT DOING ANYTHING
UNTIL I CAN FIND SOME CLOTHES THAT FIT.**

The shoes I bought online don't fit. I ordered them in "my size," obviously, but that rarely means anything because all makers of shoes and clothes have their own ideas about

sizing—which makes as much sense as allowing all the musicians in an orchestra to invent their own scales.

The lack of standard apparel sizes is a bigger problem than you might expect. Beyond just annoying the shit out of every person who's ever bought clothes or shoes, it's fantastically wasteful and a serious drag on the global spread of online commerce. And yet the apparel and retail industries won't fix it. In fact, they're actively making it worse.

But now we're getting the first glimpses of how data can tame sizing entropy. Data-driven systems are beginning to learn enough about you and the apparel you see online to make an accurate match. Such a system could tell whether those skinny jeans on Zara.com will fit well, or if you'll have to paint some Mazola on your legs just to get them on.

Any improvement here will be a **big deal**. The industry believes that about 40 percent of all apparel bought online is returned, and about 60 percent of those returns cite a problem with fit. Think of the impact up and down the line—the postage costs, the time consumers spend repacking and shipping items, the labor costs for retailers to handle the returns. How much extra pollution and traffic is generated by all those unnecessary rolls of delivery trucks and flights of cargo planes? The biggest beneficiaries of wacky sizing are UPS and Federal Express. Short their stocks if the problem gets solved.

Only about 7 percent of the clothing bought in the U.S. is purchased online. More than 60 percent of books are bought online. Why such a gap? A big slice of the population feels compelled to walk into a retail store to try on clothes and shoes. That's mostly because we lack confidence about fit—and style, too. We can't tell whether an item offered online will look good on us.

Now, you'd think a simple way to straighten out all of this would be for the world's apparel manufacturers to agree on the precise dimensions of a size 6 dress or size 11 shoes. But **history** says: That ain't gonna happen. Before the 1920s,

size didn't matter. Most apparel was hand-tailored at home or in local shops. Railroads and assembly-line manufacturing opened up the market for ready-to-wear clothes made in factories and shipped to stores. That created a need for standard sizes, but no standard existed. So every apparel maker made up its own.

Over the past 80 years, the U.S. government twice tried to institute standard sizes by measuring thousands of people and drawing conclusions about typical measurements. Each was a doomed approach to data, measuring the wrong people or the wrong body parts. (As if Air Force women had the average American shape.) Anyway, apparel companies increasingly used size as a competitive strategy. Calvin Klein wanted to lure a differently shaped shopper from the Gap, so Calvin stitched his jeans to hug Brooke Shields's backside while the Gap produced the same-size jeans in proportions more suitable to a suburban soccer mom. Meanwhile, Americans ate Triple Whoppers and Cherry Garcia and got thicker, which led to vanity sizing—inflating sizes so that a 2015 size 6 dress would've been a 1960s size 12. Now more than ever, sizing is part of an apparel company's brand identity. If anything, brands are making their sizes more different, not more standardized.

Clearly, we have a headlong collision of opposing forces: the sizing tactics of apparel companies meeting the exploding desire to buy online. A number of tech startups have noticed this opportunity and jumped in. One of the furthest along is a Woburn, Massachusetts, company called **True Fit**, which has about 5 million users and just picked up another round of funding.

True Fit borrowed an idea from music service Pandora, co-founder Romney Evans tells me. Pandora first assembled a huge trove of data about the characteristics of songs—its **Music Genome Project**. Then new users could give Pandora a little information about favorite songs, and the service could start to make matches. The more you interact with

Pandora, the more Pandora learns about you and the better it can match you to music you'll like.

True Fit does much the same with apparel. On one end, it's gathering detailed blueprints from apparel makers and creating a data set about the characteristics of clothes—a Clothing Genome, if you will. "The data wasn't aggregated anywhere," Evans says. But so far, 1,500 brands have given True Fit that data. "It's our foundation," he adds.

True Fit then started partnering with online retailers, including Macy's and Nordstrom. When you shop on their sites, you can register with True Fit. Answer a few questions about sizes and favorite brands and the company can recommend fit and style matches on that retailer's site. As with Pandora, the more you interact with True Fit, the more it learns about you, and that helps it suggest better matches. If you shop at any of its partner sites, True Fit will have your data and the Clothing Genome data and offer matches.

Even at this early stage, these data-driven systems seem to be having an impact. True Fit claims that its partner sites are seeing returns drop 10 percent to 50 percent and revenue increase an average of 7.6 percent.

Other companies are bringing different data-based approaches to the fit problem. [Fits.me](#) bought another fit tech startup, Clothes Horse, in December. Those companies offer a "virtual fitting room" so you can see how an item looks on your avatar. This will be great once I can start sending my avatar to business meetings.

Eventually, we'll be back to where we were before the 1920s: Sizes won't matter. Apparel companies can make their stuff in an infinite variety of sizes, but as long as the data about those sizes are in a system like True Fit's, consumers won't have to care. The system will automatically match your dimensions and preferences to the clothing or shoes you'd like to buy. I'll never again click on

a shoe size—the system will just know what fits my taste, and my feet.

This will boomerang to physical stores. The data could become so good, you'd never again have to try something on in a dressing room. Walk into a store, scan an item you see into an app on your phone, and it will tell you which size will fit you. It will also tell you if the item in question will flatter you or make you look as if you just ate 25 ham sandwiches.

In fact, the most radical social impact of data-based sizing might be that data will truthfully answer that booby-trap question “Do these pants make me look fat?” Husbands can just say, “Let's check the app.”



FangXiaNuo/Getty

*FROM GARBAGE
CONTAINER TO
INCUBATOR: THE
CURIOUS LIFE
CYCLE OF USED LAB
EQUIPMENT*

**THE USED LAB EQUIPMENT MARKET IS PLAGUED BY
SHADY DEALERS.**

Under the cover of night, a man jumped into a garbage container in Groton, Connecticut. He dug until he unearthed a machine that looked half decent, then another, and even pocketed a handful of unbroken beakers. He drove back to his garage, assessed his findings and was pleased. He knew his foraging trip into Pfizer's garbage would be good for business.

This was the birth of American Laboratory Trading (ALT), a used lab equipment company that has become the largest of its kind over the past 15 years. In 2014, ALT shipped refurbished lab equipment to more than 40 countries, invested over \$1 million in biotech incubators and even picked up some non-science clients—mainly movie studios needing the perfect mad scientist lab for film scenes (including, for example, the producers of Teenage Mutant Ninja Turtles).

Back in the early 2000s, “there was no real used equipment market” says Jayson Bernstein, chief operating officer of ALT. “Labs didn’t close up and have big sales the way they do now. Dumpster diving was literally how the industry started.”

Today, as the biotech industry expands—according to the U.S. Department of Commerce, it grew **almost 7 percent** in the first decade of the century—a growing number of firms like ALT and Heritage Global Partners (which auctions off as-is equipment) are entering the market to fill a rising need for lab equipment, and many independent resellers are utilizing platforms like eBay and Amazon.

But despite this surge in the used lab equipment field, it's still plagued by dirty dealers. Resellers of lab equipment are not unlike used car salesmen in the way they hustle a sale, and more than a few bootstrapping scientists have been burned. Sometimes, machines—especially expensive autoclaves (pressure chambers used to sterilize equipment) and analytic chemistry gear—are simply spit-shined and plugged in to make sure the lights come on by dealers with

little scientific or electrical background hoping to flip them for a buck.

The used car types generally prey on smaller labs with limited funding. Outfitting a lab with new equipment can run from \$500,000 to several million dollars. The priciest pieces, like the high-performance liquid chromatography machines that are crucial in biochemistry, can go for over \$150,000 a pop when new. Some dealers will resell them for around \$30,000 with little guarantee they work; others have shipped everything from chipped beakers to unwashed test tubes to small lab managers on a budget.

The now-defunct Firstenberg Machinery Company is one example of the many sellers in the industry with poor business practices. In one case, Micro Constants, a bioanalysis company, purchased an item from Firstenberg in 2012, and when it was never delivered, it sought a refund. “Firstenberg told us a couple times they were working on a refund, but it never occurred. They made arrangements to pay us \$1,000 a month, but they never followed through. They did a couple of payments then stopped,” Vielka Damond, an accounts receivable executive, told Newsweek. “Then they filed bankruptcy.”

In another instance, Firstenberg agreed to buy a generator from the Woodinville Montessori School in Bothell, Washington, for \$19,000. Wire payment information was exchanged, contractors were signed, and the generator was shipped out. But when time for payment came, Firstenberg began avoiding the school, emailing it excuses. Eventually, Firstenberg paid the school a measly \$2,750, in several installments. When the bankruptcy notice came, Patricia Hunter, Woodinville’s chief financial officer, filed for the school to receive its remaining money, “but we haven’t gotten anywhere with that.” Multiple phone calls and emails to Firstenberg for comment were not answered or returned.

Firstenberg is not the only used lab gear dealer accused of questionable business practices. A lab service employee

in the Boston area, who asked to remain anonymous because he regularly deals with resellers, expressed frustration at the ordering process with Cambridge Scientific, a company with positive customer reviews and an impressive A+ score with the Better Business Bureau. He says that the company lists equipment it doesn't yet have, as though it's in stock. In other cases, the item might be in the inventory but is broken. The result is that the gear could take weeks longer to arrive than expected. Bryan Hoffman, a sales manager for Cambridge Scientific, told Newsweek that that this was true in some circumstances, but that the company discloses it in advance. "It is extremely rare that the equipment is refurbished before you order it. We have a limited amount of technicians and quite a few orders."

Despite the numerous dark alleys buyers might find themselves in, small labs can't survive without this market. Used equipment is generally half the price of retail, and when a refurbishment is done properly, it can keep running smoothly for years.

ALT is working to overcome the stigma surrounding used lab equipment dealers. It has hired a team of electricians and scientists, built a refurbishing center and now offers a warranty on everything it sells. It also demands decontamination documents from the previous owner to ensure its safety. "Contamination is the No. 1 problem you run into. Electrical failure is No. 2. The last thing we want is something to blow up or cause a fire," says Bernstein.

Maybe the most important change is that the company is now fastidious about where its used lab equipment comes from. No more garbage container dives. "You can't pick up trash anymore and resell it—people have come to their senses," says Bernstein. Instead, the company targets closing labs for their inventory. "What used to be free 15 years ago is now our No. 1 biggest expense—our inventory," says Bernstein. "Over 50 percent of [our] items come from labs that are closing, another quarter from auctions."

And while picking clean a closed lab may sound depressing, the labs are usually shuttering for a happy reason: They have successfully sold their intellectual property, so experimentation in the lab is no longer necessary.

Looking to give back to the industry that helped it grow, ALT recently became a sponsor for several incubators, organizations that support startups by providing offices, mentorships and aid in developing business plans. Lab Central, in Massachusetts, focuses on providing shared lab space and is used primarily by “venture capitalist–funded companies with real science behind them,” founder Johannes Fruehauf explained. Its 28,000-square-foot facility is situated in biotech innovation hub Cambridge, and it acts as an office and lab space for over 100 people. About a fifth of its lab equipment is used, all donated by ALT.

Initially, the people running the co-working space were wary of ALT’s offer. Fruehauf says his experiences when buying used lab equipment were awful: “I had been burnt several times and just had a bad impression of the market.”

But after visiting ALT and meeting with its engineers, Fruehauf accepted a donation of half a million dollars in lab equipment. In return for his sponsorship, Bernstein can visit the co-working space, hold events and talk to scientists. When a company graduates from Lab Central—meaning it becomes too big, or too well funded, for the center—ALT will offer to help outfit its lab with used equipment.

P. Shannon Pendergrast, founder (along with his two brothers) of Ymir Genomics, works out of Lab Central. “We wrote programs to mine genetic data, and when we decided to test some of our programs, we needed lab space.” They also needed an unusual piece of used lab equipment: an ultracentrifuge that costs \$40,000 to \$50,000 when new. “Another company at Lab Central also needed one, so we went to Johannes and asked, doubting they would purchase it,” says Pendergrast.

After a few weeks, the centrifuge showed up, bearing an ALT sticker on the side. “I didn’t think this was the kind of place that you could ask for a \$40,000 centrifuge and it would just appear. But we were able to get it thanks to the sponsorship,” says Pendergrast. Weekly experiments using the equipment have allowed Ymir to jump to the forefront of exosomal biology—the study of small membrane bubbles that body cells shed in an attempt to communicate with each other. It’s the hottest new field in biochemistry, according to Pendergrast.

The brothers plan to move into their own space in about a year, and they plan to shop for used equipment. “I know companies that are very well funded, and they always take a look at the used equipment first,” Pendergrast says of his next office. “If there’s a piece of equipment that is not too old for the right price, you certainly consider it strongly, as long as you trust the reseller.”

Trust has been key to cleaning up the dirty business, but Fruehauf cautions that few resellers are as diligent and trustworthy as Bernstein. “A buyer of used lab equipment has to look very, very closely at who is selling it to him, not just what they are buying. They have to avoid that used car dealer salesperson. You can be burned very easily. I was.”



Autumn de Wilde

THE DECEMBERISTS ARE SORRY. REALLY.

COLIN MELOY OF THE DECEMBERISTS MAY LIVE ON A FARM OUTSIDE OF PORTLAND AND WRITE CHILDREN'S BOOKS, BUT DON'T PUT HIM IN A FLANNEL BOX.

Colin Meloy owed me an apology. He blurted it out right away after ringing me up a few minutes late for our phone interview last month. Cell reception is terrible, he explained, on the farm south of Portland, Oregon, to which he and his wife recently moved.

I couldn't resist. "How very Portland."

“Is it?” he said, as if blissfully unaware that living on a farm just outside of Portland is even more “Portland” than living in the city these days. “I don’t know what Portland is anymore.”

Except Meloy certainly does know what Portland is anymore. He has lived here since before it became a destination not just for musicians and artists but also for people who pretend they are musicians and artists, and he’s well versed in IFC’s sketch-comedy series *Portlandia*’s caricature of the city, among others.

Still, without much irony, he tells me about his farm. “We got it primarily because we needed to move closer to my son’s school, and it’s an area with mostly crazy suburban mansions. I found this place on the historical registry—it’s an 1850s farmstead, what once was a 2,000-acre farm, and it has all these 19th- and early 20th-century farm buildings in it. There’s an amazing barn, with a chicken coop. We only have eight chickens in this coop that once housed 500.”

Oh, and “there are two llamas that the seller’s agent was boarding here. They asked if we wanted to keep them, and we said sure. They just kind of do their own thing; they’re pretty low-maintenance animals. We could use them for pack animals, if we ever wanted to go on a hiking expedition.”

And there it is. Colin Meloy, whose band is known primarily for two things—being from Portland and infusing arcane historical and literary references into indie rock songs—has moved to a farm on the historic register, where he tends a flock of not just eight chickens but two llamas. How very Portland.

This was an easy segue to the conversation I wanted to have with him—not about the Decemberists’ seventh album (which dropped in January) but about the city he helped put on the map, whose residents now live under the microscope of the New York Times features desk, which assiduously follows every trend here (coffee roasting, microbrewing,

bike riding) and reports on it with anthropological detail and devotion.

Meloy lives in a markedly different Portland from the one to which he migrated from Montana in 2000, thanks partly to the same gentrification that has reshaped Brooklyn and San Francisco in the past decade but also because this city in particular became a mecca for cool kids. For much of the past 10 years, it and Atlanta were the two metropolitan areas to which more Americans in their 20s moved—with or without jobs—which is why Portlandia spoofed it as “the city young people go to retire.”

Everyone in the City of Roses has a predictable range of opinions about this phenomenon: It’s either delightful that someone finally figured out there’s life outside Manhattan and Los Angeles or it’s terrible that we have to wait in line two hours for brunch at the Screen Door. But I was particularly interested in Meloy’s perspective because he’s not just another Portland resident lamenting a problem. He’s part of the problem.

It’s geek-chic guys like Meloy who spawned this generation of mustachioed intellectuals we mock (or secretly envy). Meloy is the real McCoy, the bona fide starving artist who squatted illegally when he first got to Portland, who played shows with only a bartender as audience, and for whom commercial success was such a distant hope that he decided to do weird shit like lace antiquated references to the Civil War into his songs.



Colin Meloy performs before 22,000 fans at the 2014 Boston Calling Music Festival on May 24, 2014. Credit: Paul Marotta/Getty

The Decemberists “made it” in 2005, signing with major label Capitol Records and performing on Late Night With Conan O’Brien to introduce the band’s first big-time album, *The Crane Wife*, voted by NPR listeners as their favorite of 2006. Their story was about this funky smart band from a little city in the Pacific Northwest called Portland. As David Greenwald put it in *The Oregonian* last month, the “Portland of the ’90s was a rock town,” before rattling off a bunch of bands you’ve never heard of, when along came this band “with their bookish sensibilities and penchant for elaborate wardrobes, facial hair and acoustic instruments,” the styles Portlandia so often spoofs.

Meloy doesn’t just have the beard and black glasses and coveralls and work boots and plaid shirt—he spent much of the band’s three-year hiatus between 2011 and last year writing children’s books, for Chrissakes. The city declared January 20 the Decemberists Day in honor of the band, replete with a proclamation from the mayor lauding the group for embodying “the Portland values of passion,

engagement and communitarianism with the Portland aesthetic of homegrown, forthright, slightly hippie and often bespectacled glory.”

I asked Meloy what he meant when he said he didn’t know what Portland is anymore, partly because it seemed like an obligatory, bullshit nostalgia thing to say, like, “Man, Portland sucks now, right? I miss the good old days.” But that’s not his perspective. What’s confusing, he explained, about the transformation Portland has undergone is that an identity fairly characterized by a genuine affection for flannel and craft beer and DIY has become consumed and magnified by the stereotyping of that affection.

“Once outside interests started looking in on it,” he says, “it became this perpetual thing.”

Then he brought up Tom Waits. (You are not allowed to be a hipster in America unless you pledge allegiance to Tom Waits.) “It’s like Tom Waits’s career,” he said. “Tom Waits has this thing that’s perhaps brilliant about him, but then there’s such a concrete definition of what Tom Waits is that it’s almost that he becomes that definition. He becomes a portrait of himself, built on things that have been ascribed to him, rather than something that comes natively.”

The Times pieces and Portlandia created a definition of the city, “and then Portland started believing that, consuming that, regurgitating it. It’s almost become an over-sweet version of itself,” he says. “I don’t know if it’s a good or a bad thing. It’s very caricature-like, but there’s quality in a well-done caricature.”

You could have the same discussion about music, and maybe even his band. After 15 years, the Decemberists, like most long-running bands, have a shtick: Theirs includes playing quirky instruments (a Wurlitzer organ, an upright bass) and reenacting ancient sea battles via crowd participation during live shows. Meloy, like any artist, has to maneuver his evolution gracefully. Stick to what works for too long and it starts to feel stale. Shake things

up too dramatically and he alienates the fans who made him successful.

“There’s only so much singing about whales and things that one can do,” he says. “To be honest, so much of that stuff—writing about Dickensian characters, pulling people out of Dylan Thomas stories and putting them into songs—it was because it was funny initially, and it felt kind of at odds with the expectations of what writing indie pop was at the time. Maybe now I’m not so interested in it.”

The latest album, *What a Terrible World, What a Beautiful World*, confronts this conundrum with the first track, “The Singer Addresses His Audience”:

We know, we know, we belong to ya
We know you built your life around us
Would we change, we had to change some

We know, we know, we belong to ya
We know you grew your arms around us
And the hopes we wouldn't change
But we had to change some
You know, to belong to you

The song is a half-apology to the band’s fans, but also a story about someone else, Meloy told me, “about the lead singer of a boy band who has only ever known celebrity and is struggling with his own identity and self-ownership, in a world where he has never quite belonged to himself, only to his fans and shareholders. My own experience informs that, I guess.”

If there’s a guiding principle for his band, Meloy says, it’s making sure “we’re doing these things on our own terms.” When recording *Her Majesty the Decemberists* in 2003, for instance, he decided to open the album with a blood-curdling scream, over the objections of those who worried it would put people off. To Meloy, “that was a

statement of intent. This is who we are, and we're doing things on our own terms. Hopefully, every Decemberists record has set out to do that."

Despite the suggestion on the new album's first song that "we had to change some," the record doesn't depart wildly from the sound the Decemberists have become known for. "I'm aware of my limitations as a songwriter and arranger," says Meloy, "and I'm aware of the band's limitations. There's kind of a mold we fit in.... We don't want to transform so much as to be unrecognizable."

So the band, like its city, evolves as seamlessly as possible, endeavoring to stay true to the sound for which it's known without falling into a rut. This album accomplishes that, I think; the eighth track, "Carolina Low," sounds like no Decemberists song I've heard before. And even though "The Singer Addresses His Audience"—my favorite—is about variation, the sound remains familiar. Reassuring, ironically enough, if you're one of those fans who doesn't want your favorite band, or your favorite city, to change.



Netflix

'X-FILES' BEHIND HER, GILLIAN ANDERSON IS A BELIEVER

BEST KNOWN AS THE SKEPTICAL SCULLY, ANDERSON IS DEMONSTRATING WITH TWO HIT SHOWS THAT SHE'S STILL THE BIGGEST BALLBUSTER ON TELEVISION.

During the middle of our breakfast one early morning in January, the flaxen-haired actor Gillian Anderson abruptly asks me if I recall the coffee shop scene from *Pulp Fiction*. You know, the one where Honey Bunny and Pumpkin plot how they're going to rob the joint? "I don't know why. It's a

mixture of the music and some aspects of our conversation, but this feels like a parallel universe,” she says, except ours is inside the Trump SoHo New York hotel. “Like, what if all of a sudden those two people”—she points to a couple plunging into pancakes at a nearby table—“have alien beings inside them and something is going to crawl out of their skulls?”

The Koi Restaurant at the Trump SoHo doesn’t bear much resemblance to the greasy spoon in Quentin Tarantino’s cult classic, but there has been something slightly supernatural about our conversation this morning, which has included discussions about lucid dreams, Charles Dickens, Tibetan monks and sociopathic behavior. Anderson’s alien-inhabitation scenario also could have been taken from an episode of *The X-Files*, the revered ’90s science fiction series that propelled her into international stardom in her role as the skeptical, brilliant FBI Agent Dana Scully.

But having spent the morning with Anderson, I suspect this kind of reference is not out of character. Clad in a brown silk shirt and a teardrop turquoise necklace, Anderson seems more believer (or at least agnostic) than skeptic, perhaps due to the many “extraordinary experiences” she tells me she’s had; when I press her about said experiences, she just smiles and leaves the details a mystery.

Born in Chicago in 1968, Anderson packed up for Puerto Rico with her family when she was 15 months old, and then when she was 2 it was on to the U.K., where her father ran a postproduction film house. When she was 11, her parents moved to Michigan, where she was teased for her half-British, half-American drawl. Friends describe the teenage Anderson, who was involved in amateur acting troupes, as a “punk”; she favored the anarchist musical stylings of the Dead Kennedys and Skinny Puppy and sported a shaved head, a nose piercing and an all-black wardrobe.

The actor described herself in a 2013 interview with NPR as the kind of youth “people would get to do the things they were afraid to get in trouble for,” and she was voted “Class Clown,” “Most Bizarre Girl” and “Most Likely to Be Arrested” as a high school senior. Come graduation night, she fulfilled one of those predictions when she and her boyfriend were nabbed by police for attempting to glue the locks on the doors to City High School in Grand Rapids, Michigan.

But it wasn't long until she cleaned up her act by, well, acting. From a young age she had been recognized as a gifted actor with a fluency for language, and she began acting in community plays and through her high school's acting troupe. After graduating with a fine arts degree from DePaul University, she moved to New York City, where she had a stint starring in well-received off-Broadway productions, including *Absent Friends*, which earned her a Theater World Award. She soon relocated to Los Angeles and landed her breakout role on *The X-Files*. Then then 24-year-old convinced the show's producers she was 27, hoping the white lie would make her a more credible Dr. Dana Scully.

Some think Anderson, now 46, peaked playing Scully, but she is just hitting her theatrical stride. She ended 2014 with an acclaimed turn as Blanche Dubois in a limited production of *A Streetcar Named Desire* at London's Young Vic. (“She makes each phase of the Dubois disintegration her own,” wrote Guardian critic Susannah Clapp.) Then there are her two current television hits, NBC's *Hannibal* and BBC's *The Fall* (which she also produces), both of which are likely returning for respective third seasons (*The Fall* creator Allan Cubitt said he is “**very confident**” the show will have a third installment).

Her roles in these two criminal-profiling dramas—Dr. Bedelia Du Maurier, cannibal Hannibal Lecter's psychiatrist, and Stella Gibson, a hardboiled special investigator hunting

a serial killer—solidify her grip on the title of TV's biggest ballbuster. When we meet, *The Fall*'s acclaimed second season is three days from having its debut on Netflix, and Anderson seems content, worlds from that character, who sacrifices her life and sanity to catch the complicated psychopathic killer and father Paul Spector, played by the hunky Jamie Dornan (soon to be seen in *Fifty Shades of Grey*).

When I mention her penchant for challenging roles in gripping psychological dramas, she insists it's not intentional. She's a serious dramatic actor, as evidenced by her roles in television miniseries adaptations of Charles Dickens's *Bleak House* and *Great Expectations*. Which is not to say she doesn't find characters who deal with murder fascinating. "It's almost like we're testing how much can we take," she says. "We're pushing our own boundaries in terms of how much of this information can we take in and study and watch before we tip over into that person. There's something definitely addictive about that."

Tomorrow she'll be heading to Toronto to start shooting the upcoming season of *Hannibal*, but she's also signed on to an as-yet-to-be-announced film project as actor and producer, is writing the second book of her science fiction series *A Vision of Fire* and is about to write another book that is "coincidentally, about seeking truth." Oh, and there has been chatter recently about conversations between *X-Files* series creator Chris Carter, Fox executives and her former co-star, David Duchovny, about rebooting the supernatural series in 2016.

So does she have alien DNA that affords her around-the-clock productivity, or has she simply learned to function without sleep while jetting between Chicago, Toronto and London for her projects? She laughs at my alien theory, then puts her face in her hands. Looking up again, her blue eyes are half-mast but lively. "I embrace jet lag for all those quiet hours where one can actually get some work done," she says.

It's then that I spot two diminutive tattoos: a circle on her left hand and an inscription on her right wrist—two of four tattoos that are all in some way about “peace of mind, right mind, right action.” Anderson's about to get inked for a fifth time, but she won't tell me what she's getting (or where). Whatever it is, I suspect it will be another reminder about seeking calm amid chaos, especially given her enthusiasm for spirituality books by religion scholar Karen Armstrong and Tibetan Buddhist nun and author Pema Chodron. “I don't ask for help until I'm literally on my knees,” she admits. “So I try to transmute some of the pain and discomfort and resentment and frustration.”

The Fall's Gibson is a law enforcement officer dedicated to nabbing a serial killer endangering the lives of young women in Belfast. But she isn't the archetypal good cop: She is operating in a moral gray area. In the pursuit of justice, she has only a passing consideration for how her actions affect others; she lies to get ahead and sleeps with a married fellow officer who's killed the next day. To further complicate things, she is an Englishwoman tasked with being an authority figure in Ireland.

She says she's drawn to Gibson for her self-confidence and connection to her femininity, but she is still awed by her. “I don't think I've ever read a character like Stella before. I'm as confounded by her as the audience is,” Anderson confesses. “Her behavior sometimes, and the things that she does...I have winced! Yet it's so clearly organic to who she is and within the realms of this personality.”

Before we leave I muster the courage to ask her an X-Files fandom question: Is the truth out there? “Well, it better be out there somewhere,” she says. “Whether the framework is political or spiritual or metaphysical, the answer is the same answer for all of them, which is yes. It is.”



Phil Noble/Reuters

HELLO, BOREDOM, MY OLD FRIEND

**A RADIO SERIES ARGUES THAT OUR ENDLESS DIGITAL
DISTRACTIONS STYMIE SERIOUS THOUGHT AND
CREATIVITY.**

When was the last time you were truly bored? Bored with no end in sight, bored in the way you imagine prisoners in solitary confinement are bored. So bored your mind churns through every chore you have to complete, every aspiration you have yet to accomplish, every fear and every dread, every flaw in your character. A boredom that so

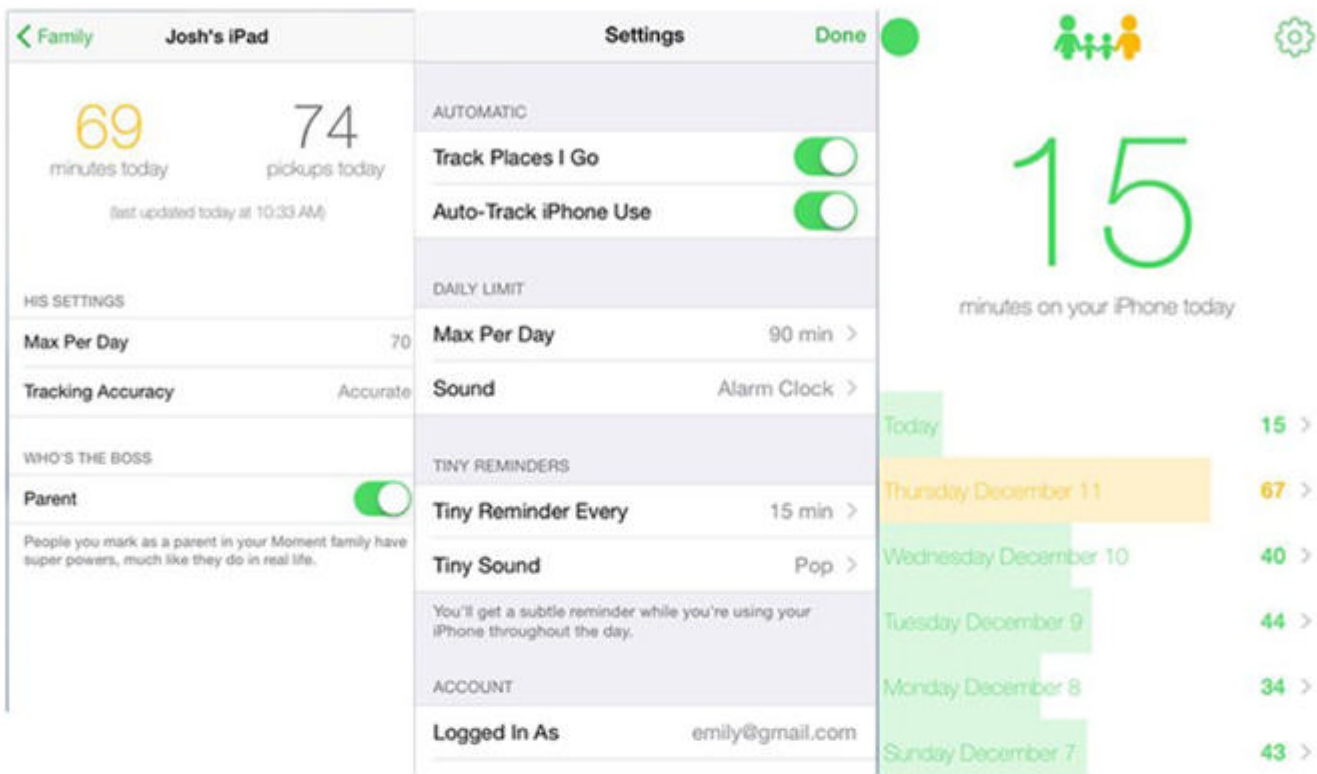
surpasses the old cliché of DMV-visit boredom, of Southern California freeway traffic jam boredom, of calculus class boredom, a boredom so far beyond transatlantic-flight-in-1993-with-only-Single-White-Female-to-watch-on-the-television-suspended-from-the-ceiling boredom that it becomes a physical force, a thrumming white heat that hollows out your insides. That kind of boredom.

Here's the thing: If you have an iPhone, you never have to feel that sort of boredom ever again. In fact, if you are a millennial, it is possible you have never truly known this dreaded psychic force, which is equal parts soul-crushing and soul-emptying. You have never felt the despair, maybe, of your mind facing the smooth wall of nothingness: What will I think of next? If you do find yourself mired at the notorious DMV, you can play Angry Birds or, if you're of a more sober constitution, blast through the myriad #longreads on your Instapaper account. On an interminable flight, you can binge on whatever entertainment you've uploaded to your iPad. You do not have to occupy yourself with your own thoughts.

Maybe that's a bad thing, argues "**Bored and Brilliant**," a deeply intelligent and perfectly germane feature from WNYC program New Tech City. Maybe boredom is cleansing, a mental colonic that allows for creativity and reflection. Maybe boredom is not a lack of purpose, but the absence of distraction.

"If you're like me," writes New Tech City host Manoush Zomorodi on the show's website, "you've traded in daydreaming and mind-wandering for swiping, texting and connecting small pieces of candy." In a broadcast titled "The Case for Boredom," which foreshadowed the week of boredom-inducing challenges that began on February 2 (but which, thanks to the iPhone, can be undertaken whenever you like), she summoned personal anecdotes and social research findings to argue that we suffer from a collective digital obsession that deprives us of the mundane, the un-

pixelated, unmediated real. Rarely has a conversation about boredom been less boring. I found it more thrilling than Serial because, frankly, it was of more universal import. More recent episodes of New Tech City have continued to make the same case, with just the right doses of levity and insight.



The Moment app allows users to track how often they use their phones.

Credit: Apple Inc.

While New Tech City has been diving into boredom’s depths for much of January, “Bored And Brilliant” began in earnest on February 2, with a week of challenges conducted by listeners with the apps **Moment** (for iOs) and **BreakFree** (Android), which track daily smartphone usage. The purpose is unabashedly activist: to make listeners aware of how deeply they have come to rely on their smartphones and how superficial that reliance is. To attenuate that usage by asking people to become more aware of it. I mean, who really needs to check her Twitter feed 52 times a day? Of course, many of us (myself included) have been listening to “Bored and Brilliant” via the WNYC app, while texts and emails disrupt with their rings and dings.

The first challenge, which appeared in my email inbox on Monday morning, was simple enough: “As you move

from place to place, keep your phone in your pocket. Or better yet, in your bag...while you're boarding the train, walking down the street, or sitting in the passenger seat of a car, we're asking you to look at your phone only when you have reached your destination.”

“You can do it,” the email encourages, in the voice of a therapist or a life coach. You can go 10 minutes without a feline listicle. Maybe even 20 minutes.

Zomorodi has made it clear she is not interested in the cheap mindfulness peddled by the likes of Arianna Huffington, an above-the-fray attitude that only the wealthy can afford. Nor is she a Luddite who thinks we should all go back to using rotary phones and reading printed books. “I don’t think swearing off our devices is the solution,” **she recently wrote on Quartz**. “My smartphone is the reason I can work full-time and see my kids.” But it is also the reason many of us find ourselves so harried on a daily basis. Harried, mind you, by trivialities: slideshows of ’90s celebrities and fleeting hashtag outrages. These, we can do without. Maybe we can even learn to leave our phones at home once in a while. We won’t get lost without them. Or maybe we will get lost—and love it.

Several months ago, **a Kickstarter campaign began for a device called the NoPhone**, “a technology-free alternative to constant hand-to-phone contact that allows you to stay connected with the real world.” In other words, a slab of plastic that resembles an iPhone in shape and feel, but has no actual function whatsoever. Some speculated that the NoPhone was a joke, others that it was an earnest response to our digital addiction. Whatever the case, donors responded. The makers of the NoPhone had asked for \$5,000. They got \$18,000 instead.

01

CRACKS IN THE FACADE

Oesterbro, Copenhagen - Danish police technicians examine the scene where 30 bullets struck a window outside a café where a gunman tried to storm a free speech meeting on February 14, killing one person. The gunman opened fire on a crowd at a synagogue the following day, killing one man. Authorities suspect the shooter was targeting controversial Swedish artist Lars Vilks, who has received death threats for depicting the head of the Prophet Muhammad on the body of a dog. A suspect identified as Omar Abdel Hamid el-Hussein was shot dead later that day by police near a train station.



Liselotte Sabroe/Scanpix Denmark/Reuters

02

WAILING WALL

El-Our village, Egypt - A relative of one of the 21 Egyptian Coptic Christians killed in Libya by ISIS-affiliated militants mourns at a church before attending Mass on February 16. For weeks, Coptic Christians had petitioned Egyptian President Abdel Fattah el-Sissi to do more to arrange for the safe return of at least 21 Egyptians who were kidnapped in two separate incidents in the city of Sirte, Libya, in December and January. Egyptian jets bombed ISIS targets in Libya the day after the group released a five-minute video showing the beheading of the 21 men.



03

LAST RITES

Wendell, North Carolina - Suzanne Barakat holds her father, Namee Barakat, as they watch dirt being shoveled onto the grave of her brother, Deah Barakat, 23, who was gunned down February 10 with his wife, Yusor Mohammad Abu-Salha, 21, and her visiting sister, Razan Mohammad Abu-Salha, 19, in their Chapel Hill, North Carolina, home. Craig Stephen Hicks, a 46-year-old neighbor, turned himself in to police and has been charged with three counts of first-degree murder after what police said may have been an escalation of a parking dispute. President Barack Obama called the attacks “brutal and outrageous,” adding, “No one in the United States of America should ever be targeted because of who they are, what they look like or how they worship.... We are all an American family.”



04

YOU MISSED

Kramatorsk, Ukraine - An unexploded rocket landed in a residential area on February 10. A day later, German Chancellor Angela Merkel and French President François Hollande met with Russian President Vladimir Putin and Ukrainian President Petro Poroshenko in Minsk, Belarus, to broker a peace deal as well as the withdrawal of heavy weapons to create two demilitarized buffer zones between pro-Russian separatists and Ukrainian forces. Less than two days into the cease-fire, at least 129 violations had occurred, according to Ukrainian defense spokesman Andriy Lysenko. Ukraine also accused Russia of continuing to send troops and tanks, an assertion Moscow denied.



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